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EXAMINER	
LIU, SUE XU	
ART UNIT	**PAPER NUMBER**
1639	

DATE MAILED: 07/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/798,639	O'CONNOR ET AL.	
	Examiner	Art Unit	
	Sue Liu	1639	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 April 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-84* is/are pending in the application.

4a) Of the above claim(s) *22,25,47,50 and 53-82* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21, 23, 24, 26-46, 48, 19, 51, 52, 83 and 84* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Status

Claims 1-84 are currently pending;

Claims 83 and 84 are newly added;

Claims 22, 25, 47, 50, and 53-82 have been withdrawn;

Claims 1-21, 23, 24, 26-46, 48, 49, 51, 52, 83 and 84 are being examined in this application.

Election/Restrictions

1. The newly added claims 83 and 84 are grouped together with the elected group and are examined in this application.

2. This application contains claims 55-82 drawn to an invention nonelected with traverse in the reply filed on 8/29/2005. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Claim Objections Withdrawn

3. In light of applicants' amendments to the claims, the objection against Claims 9 and 34 in the previous office action is withdrawn.

Claim Objections Withdrawn

4. In light of applicants' amendments to the claims and upon further consideration, the following rejections are withdrawn:

Claims 1-21, 23, 24, 26-46, 48, 49, 51 and 52 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim Rejections Maintained (102-Beattie)

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 1-4, 7-12, 17, 20, 21, 26-30, 33-37, 42, 45, 46, 48, 51 and 52 as amended or originally filed are rejected under 35 U.S.C. **102(b)** as being anticipated by Beattie et al (US Patent 5,843,767; 1998). The previous rejection is maintained for the reasons of record advanced on pages 5-7 of the office action mailed on 10/19/05.

Discussion and Answer to Argument

7. Applicant's arguments have been fully considered but they are not persuasive for the following reasons (in addition to reasons of record). Each point of applicant's traversal is addressed below (applicant's arguments are in italic):

Applicants argue that the examiner have improperly grouped together all of the above said claims in a common rejection, and thus it's difficult to specifically determine where the examiner believes that Beattie discloses the features of various claims in the grouping. Specifically, applicant further argue that the examiner has not established a prima facie case that Beatties anticipates claims 11, 22, 36 and 47, and request Claims 11, 22, 36 and 47 to be allowed.

First, applicant's argument against claims 22 and 47 are moot because the said claims have been withdrawn due to nonelected species as set forth in the previous office action.

Contrary to applicant's assertion, all of the instant Claims 1-4, 7-12, 17, 20, 21, 26-30, 33-37, 42, 45, 46, 48, 51 and 52 are properly rejected under 35 U.S.C. **102(b)** as being anticipated by Beattie et al (US Patent 5,843,767; 1998). Although, the rejection as set forth in the previous office action did not explicitly list the instant claim numbers that correspond to the cited reference's teaching, the corresponding limitations recited in each of the above said instant claims are listed and discussed along with each of the anticipatory teaching of the Beattie reference. In order to clarify the record, the rejection is rewritten below adding each of the corresponding instant claim numbers, which are in bold.

Beattie teaches a microfabricated apparatus for conducting a multiplicity of individual and simultaneous binding reactions. The reference specifically teaches a device comprising the followings (See Claim 1 and 20 of the reference; Figure 1A and 1B, which depicts the "use of an array of tapered sample wells that comprise...porous wafer..." as recited in Column 9, lines 1-9.):

A.) a substrate (which could be either glass or silicon as recited in Claims 11 and 29 of the reference) having oppositely facing first and second major surfaces (would refer to the first and second sides of the instant **clms 1, and 27**);

B.) a multiplicity of discrete channels extending through said substrate from said first major surface to said second major surface (would refer to the arrays of microwells and porous regions of **clm 1,** and the continuous channel of **clms 8, and 33**); This would also read on the

cavity recited in **clm 7** because the discrete channel would constitute as cavity. The discrete channels also read on microwells with the intended use of forming an ion bridge, as recited in **clms 17 and 42**.

C.) a first binding reagent (which could be DNA, proteins, ligands etc. Claims 16, 17, 34 and 35 of the reference) immobilized on the walls of the channels (would refer to at least one component of a chemical reaction is immobilized on the porous region of **clm 27**);

D.) further comprising a rigid support (which comprises wells; claim 23 of the reference) that is integral to the substrate, which reads on microwells that holds sample of **clms 2 and 28**.

The reference further teaches the substrate is "made of oriented array microporous silicon" or "nanochannel glass" (would refer to porous regions of **clms 1, and 27**). (See Claims 13 and 30 of the reference.)

The reference also teaches the diameters of the channels within a nanochannel glass could range from 33 nm to several micrometers (See Column 9, lines 50-55; Claim 4 of the reference), which reads on the pore size recited in **clms 3, 4, 29, and 30.** The reference also teaches pore size of approximately 2nm to micrometer dimensions (col. 12, lines 25+), which reads on the newly amended **clms 3, 4, 29 and 30**.

Together, these would refer to the device having two sides, an array of microwells, and porous regions within the wells, as recited in **clms 1 and 27**.

Furthermore, the reference teaches derivatizing the surface of the glass substrate with epoxysilane (Claims 19 and 37 of the reference), which would refer to "a reactive monolayer deposited thereon" as recited in **clms 9, and 34**.

The reference also teaches oligonucleotides are fixed in the isolated and discrete regions on the substrate through layer of platinum or gold substrate derivatized with a dithioalkane (Column 6, paragraph (k)), which would refer to the "organothiol molecules covalently bonded to a metallic layer" of **clms 10, and 35** with the dithioalkane reads on alkylthiols of **clms 11 and 36**, and the gold substrate reads on the gold metallic layer of **clms 12 and 37**. This also reads on the device "comprising at least one component of a chemical reaction" of **clms 51 and 52.**

In addition, the reference teaches the substrate (in the form of a wafer) is packaged within a 2 mm x 4 mm polypropylene frame serving as an upper reservoir and structure for handling (See Example 6 in Column 15 of the reference). This would refer to a hydrophobic containment layer of **clms 20, 21, 45, and 46**. Since the reference teaches the device is in an array format, the position of each of the well is spatially defined (referring to a means for conveying information about the location of the microwells as recited in **clms 26 and 48**).

Applicants also argue that a prima facie case has not been established to show that Beattie anticipates Claims 5-6, 11, 13-16, 18-19, 22-4, 26, 31-32, 36, 38-41, 44 and 47-49, and therefore the rejection of these claims as being anticipated by Beattie should be withdrawn.

Applicant's argument against the instant Claims 11, 26, 36 and 48 are addressed by the above rejection over Beattie.

Applicant's argument against Claims 5-6, 13-16, 18-19, 22-24, 31-32, 38-41, 44, 47, and 49 are moot because no anticipatory rejection under 35 U.S.C. 102 was made against the said claims over Beattie.

Applicant also argue that Beattie's teaching does not anticipate Claim 1 of the instant application because of the following:

A. Beattie does not disclose the porous region is formed by selective removal of a substrate constituent (such as certain atoms in the substrate). (pg 12, 1st para of the reply)

B. Beattie does not teach the porous regions extend partially through the substrate, rather the channels taught by Beattie extend through the entire nanoporous glass wafer. (pg 12, 1st para of the reply)

In response to applicant's argument that the reference fail to show certain features of applicant's invention, it is noted that the feature upon which applicant relies, "the porous region is formed by selective removal of a substrate constituent", is a product by process limitation. Although Beatties does not specifically teach that the porous region is formed by selective removal of a substrate constituent, the device claimed in the instant application appears to be the same or obvious variations of Beatties' teachings, absent a showing of unobvious differences. The office does not have the facilities and resources to provide the factual evidence needed in order to determine and/or compare the specific process from which the claimed product is derived from as recited in the instant application versus the reference. In the absence of the evidence to the contrary, the burden is upon the applicant to prove that the claimed composition is different from the one taught by prior art and to establish the patentable differences.

> "[T]he lack of physical description in a product-by-process claim makes determination of the patentability of the claim more difficult, since in spite of the fact that the claim may recite only process limitations, it is the patentability of the product claimed and not of the recited process steps which must be established. We are therefore of the opinion that when the prior art discloses a product which reasonably appears to be either identical with or only slightly different than a product claimed in a product-by-process claim, a rejection based alternatively on either section 102 or section 103 of the statute is eminently fair and acceptable. As a practical matter, the Patent Office is not equipped to manufacture products by the myriad of processes put before it and then obtain prior art products and

> make physical comparisons therewith." In re Brown, 459 F.2d 531, 535, 173 USPQ 685, 688 (CCPA 1972).

To address the applicant's argument that Beattie does not teach "the porous regions extend partially through the substrate", the feature is taught by the reference. The Beattie reference teaches using electrochemical etching to form various pore structures such as interconnected branched network of pores with porosity of 30-80% depending on etching condition (see col. 12, lines 25+ and lines 39+), which reads on the porous regions extend partially through the substrate. Thus, the Beattie reference teaches that the extend of pore formation depends on etching condition, and partial porous regions (30-80% porosity) can be formed.

Applicant also argue that Beattie does not teach "a cavity located at a side of the substrate opposite the first side and extending partially through the substrate to intersect the porous regions", which is recited in the instant Claim 27.

The instant claim 27 recites the "cavity" is extended partially through the substrate to intersect the porous regions, and the instant specification discloses that the cavity is aligned with the microwell to form an open channel extending through the substrate (pg 3, bottom of [0008]). Thus, part of the channels that recited in Claim 1 of Beattie would read on the cavity that extended partially through the substrate to intersect the porous regions. In addition, the Beattie reference also teaches branched network of pores (see col. 12, lines 25+ and lines 39+), which the branched pores would also read on cavities that intersect other porous regions.

Applicant also argue that Beattie does not disclose pores that are at least 2.5 to 32 nanometers in size, as recited in the newly amended Claims 3 and 29.

As discussed above, Beattie teaches pores with various sizes such as pore size of approximately 2nm to micrometer dimensions (col. 12, lines 25+ of Beattie), which reads on the newly amended **clms 3, 4, 29 and 30**.

Claim Rejections Maintained (102-Tso)

8. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

9. Claims 1 and 2 as amended or originally filed are rejected under 35 U.S.C. **102(e)** as being anticipated by Tso et al (US Patent 6,635,226). The previous rejection is maintained for the reasons of record advanced on pages 7-8 of the office action mailed on 10/19/05.

Discussion and Answer to Argument

10. Applicant's arguments have been fully considered but they are not persuasive for the following reasons (in addition to reasons of record). Each point of applicant's traversal is addressed below (applicant's arguments are in italic):

Similar to the argument over the Beattie reference, Applicants argue that Tso does not disclose the particular claimed porous region that is formed by selective removal of a substrate constituent.

As discussed above, the feature recited by applicant, "the porous region is formed by selective removal of a substrate constituent", is a product by process limitation (see above discussion regarding product by process limitations).

Contrary to applicant's assertion, Tso does teach porous regions as discussed in the previous office action. As set forth in the previous office action, Tso teaches a microanalytical device comprising the followings (See Claim 1 of the reference):

a.) a substrate from materials that are not silicon based, having first and second substantially planar opposing surfaces (would read on the two sides of the substrate of the instant claims).

b.) the said substrate having a cavity and at least one microchannel formed in the first planar surface, wherein the cavity serves as a reaction that is fluid communication with each microchannel. The microchannel would refer to the porous regions and the microwells of the instant claim 1.

Claim Rejections Maintained (103-Beattie and others)

11. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

12. Claims 1-21, 23-46, and 48-52 as amended or originally filed are rejected under 35 U.S.C. 103(a) as being obvious over Beattie et al (US Patent 5,843,767; 1998), in view of Rauscher (US Patent 4,112,170; 1978), Chan et al (US 2002/0090649 A1), Harding et al (US Patent 3,280,019; 1966), Stern (US 2002/0055102 A1). The previous rejection is maintained for the reasons of record advanced on pages 8-10 of the office action mailed on 10/19/05.

Discussion and Answer to Argument

13. Applicant's arguments have been fully considered but they are not persuasive for the following reasons (in addition to reasons of record). Each point of applicant's traversal is addressed below (applicant's arguments are in italic):

Applicants did not traverse the 103 rejection set forth in the previous office action, however, the rejection is rewritten below to reflect the instant claim numbers to clarify the record.

Beattie teaches a microfabricated apparatus for conducting a multiplicity of individual and simultaneous binding reactions as detailed above.

Beatties does not teach a microarray that is specifically derived from a substrate that is based on borosilicate glass. The reference also does not teach the device to comprise the following materials: gold based electrodes, silver epoxy as conductive material coated on the walls of the microwell, and a bar code.

However, **Rauscher** teaches using borosilicate glass to manufacture a glass body comprising an array of channels (e.g. Claim 1 of the reference), which reads on the elements recited in **clms 5, 6, 31, and 32.** As discussed above, the limitations recited in Claims 32 and 6 are product by process limitations. The reference also teaches the advantages of using borosilicate glass due to its improved leaching characteristics in combination with softening points and thermal expansion coefficients acceptable for fabricating composite glass articles used

in the production of channeled bodies (Column 2, lines 26-33), which provides motivation for one of ordinary skill in the art to use borosilicate glass to generate a device with porous regions.

Chan et al teach using electrodes for electronic or electrochemical detection of biomolecules using biochip arrays. The reference specifically teaches the preferred electrodes are known in the art and include metals such as aluminum. (Page 7, paragraph 0056 of the reference), which reads on the electrodes recited in **clms 13-16, and 38-41.** The reference also teaches using hydrophobic insulation layer for the biochip array (See Figure 9 and 11 of the reference). The reference also teaches that "electrical and electrochemical detection techniques are based on the detection of alterations in the electrical properties of an electrode arising from interactions between one group of molecules attached to the surface of an electrode (often referred to as "probe" molecules) and another set of molecules present in a reaction mixture (often referred to as "target" molecules) contacted with the electrode" (para. [0004]). A person of ordinary skill in the art at the time of invention would have been motivated to include electrodes that are known in the art and are preferred electrodes in a device designed to measure electrochemical reactions.

Harding et al teach using silver epoxy as an electrically conductive adhesive on semiconductor chips (Column 5 lines 4-10 of the reference), which reads on the conductive epoxy of **clms 18, 19, 43 and 44**. The reference also teaches the advantage of using silver epoxy as an electrically conductive adhesive due to its insolubility in electrophoretic bath (Column 5 lines 4-10 of the reference). This would provide motivation for one of ordinary skill in the art to use silver epoxy as electrically conductive adhesives for a device designed to measure electrochemical reactions.

Stern teaches a bar code may be imprinted on glass plate for microarray detection and analysis (Page 11, paragraph [0099]), which reads on the bar code of **clms 23, 24, and 49.** The reference also teaches the advantages of using bar code in microarray such as information linked to an identifier for a microarray can be retrieved (Page 11, paragraph [0099]). A person of ordinary skill in the art at the time the invention was made would have been motivated to use bar code in an array type of device for easy information retrieval and identification purposes.

Therefore, it would have been prima facie obvious for an ordinary skilled artisan to generate a microarray by using porous glass slides with build-in electrodes.

A person of ordinary skill in the art would have been motivated at the time of the invention to use borosilicate glass to generate a device with pores and/or channels, because the advantages taught by Rauscher of using borosilicate glass would lead to improved leaching characteristics that are particular acceptable for fabricating channeled bodies.

A person of ordinary skill in the art would have been motivated at the time of the invention to use borosilicate glass to generate a device with aluminum electrodes for measuring chemical reaction through electrical signaling, because Chan et al teaches the necessity of using electrodes for detect electrochemical reactions and that the preferred electrodes in the art include aluminum and others as discussed above.

A person of ordinary skill in the art would have been motivated at the time of the invention to use borosilicate glass to generate a device with aluminum electrodes and conductive epoxy deposits, because Harding et al teaches the advantages of using conductive epoxy such as silver epoxy in electrophoretic devices as discussed above.

A person of ordinary skill in the art would have been motivated at the time of the invention to use borosilicate glass to generate a device with aluminum electrodes. conductive epoxy deposits, and bar code, because Stern teaches the advantages of using bar code especially for an array device that would allow easy data retrieval and sample identification as discussed above.

A person of ordinary skill in the art would have been motivated at the time of the invention to manufacture microarrays that are capable of detecting electrochemical signals by using porous glass slides in combination with various known coating technologies and electrodes as taught by the above said references.

Each of the components of the device and their applications in microarray or related fields (such as semiconductor industry) are known in the prior art as taught by Beattie et al, Rauscher, Chan et al, Harding et al, and Stern. For example, silver epoxy is known to be a conductive coating material, and can be used in coating microchips as taught by Harding et al. Therefore, an ordinary skilled artisan would have reasonable expectation of success of achieving such modifications.

New Rejection Necessitated by Amendment

Claim Rejections - 35 USC § 102

Claim Rejections - 35 USC § 103

14. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

15. Claims 83 and 84 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Rauscher (US Patent 4,112,170; 1978).

The instant claims recite a device for performing chemical reactions, comprising a borosilicate glass substrate and an array of microwells formed in the borosilicate glass substrate, each microwell comprising a porous region, extending partially through the substrate, that is formed by selective removal of boron ions from the borosilicate glass substrate to leave voids in the borosilicate glass substrate wherein sample molecules can bind to the voids in the borosilicate glass substrate.

Rauscher, throughout the patent, teaches borosilicate substrate with wells or channels formed thereon (see Abstract of the reference). The reference teaches forming channels in the borosilicate plates (see col. 3, lines 40+), which the channels would read on microwell comprising a porous region of **clm 83**.

Although the reference does not explicitly teach that the channels extend partially through the substrate as recited in **clm 83**, the reference does teach that a wide variety of channels can be formed depending on different procedures (col. 7, lines 20+). Therefore, it would have been obvious for one of ordinary skill in the art to fabricate channels (or pores) that partially extend through the substrate as an obvious variation of the reference's teaching.

Although the reference does not specifically teach the intended use of the substrate to bind sample molecules to the pores or voids of the substrate as recited in **clm 83**, the product has the same structural elements as the claimed invention.

Although the reference does not specifically teach the product by process limitation of the porous region being formed by selective removal of boron ions from the borosilicate glass

substrate to leave voids as recited in **clms 83 and 84**, the product has the same structural elements as the claimed invention. The office does not have the facilities and resources to provide the factual evidence needed in order to determine and/or compare the specific process from which the claimed product is derived from as recited in the instant application versus the reference. In the absence of the evidence to the contrary, the burden is upon the applicant to prove that the claimed composition is different from the one taught by prior art and to establish the patentable differences.

> "[T]he lack of physical description in a product-by-process claim makes determination of the patentability of the claim more difficult, since in spite of the fact that the claim may recite only process limitations, it is the patentability of the product claimed and not of the recited process steps which must be established. We are therefore of the opinion that when the prior art discloses a product which reasonably appears to be either identical with or only slightly different than a product claimed in a product-by-process claim, a rejection based alternatively on either section 102 or section 103 of the statute is eminently fair and acceptable. As a practical matter, the Patent Office is not equipped to manufacture products by the myriad of processes put before it and then obtain prior art products and make physical comparisons therewith." In re Brown, 459 F.2d 531, 535, 173 USPQ 685, 688 (CCPA 1972).

16. Claims 83 and 84 are rejected under 35 U.S.C. 103(a) as being obvious over Beattie et al (US Patent 5,843,767; 1998), and Rauscher (US Patent 4,112,170; 1978).

As discussed above, Beattie et al, throughout the reference, teach a microfabricated device comprising two sides with porous regions and microwells.

Beattie et al do not specifically teach borosilicate glass as the substrate.

However, Rauscher, throughout the reference, teaches borosilicate glass as a substrate for making plates with various channels as discussed above. The reference also teaches that

borosilicate glass are leachable, suitable for making channeled plates (col. 2, lines 26+), exhibit improved acid dissolution characteristics and can make high quality channels (col. 3, lines 15+).

Therefore, it would have been prima facie obvious for one of ordinary skill in the art at the time the invention was made to make a device with microwells comprising a porous region using borosilicate glass.

A person of ordinary skill in the art would have been motivated at the time of the invention to use borosilicate glass based substrate to generate a device with microwells that comprise porous regions, because borosilicate glass substrates are leachable, suitable for making channeled plates, exhibit improved acid dissolution characteristics and can make high quality channels as taught by Rauscher.

An ordinary skilled artisan would have reasonable expectation of success of achieving such modifications since Rauscher has demonstrated the success of making channels in borosilicate glass and Beattie et al have demonstrated the success of making various glass based porous plates.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sue Liu whose telephone number is 571-272-5539. The examiner can normally be reached on M-F 9am-3pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Paras can be reached at 571-272-4517. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PETER PARAS, JR.
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600



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Art Unit 1639
7/10/2006